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*SR*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/935,844    09/23/97    WILSON

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TM02/0409

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EXAMINER
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ART UNIT	PAPER NUMBER

2185

*18*

DATE MAILED:

04/09/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

*SR*

# Office Action Summary

Application No.  
08/935,844

Applicant(s)  
Wilson et al.

Examiner  
Kimberly McLean

Group Art Unit  
2185



☒ Responsive to communication(s) filed on Apr 2, 2001

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-32, 34-60, and 62-67 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-32, 34-60, and 62-67 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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***Request for Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 2, 2001 has been entered. An action on the RCE follows.

***Claim Objections***

2. Claim 64 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

3. Claim 67 depends on claim 61 which has been canceled in lieu of the Amendment submitted on October 25, 2000. Correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 56-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 56 states, "the at least one communication link being selected from the group consisting of an intranet and Internet..". This language is unclear to the Examiner. Is Applicant claiming that the Internet and the Intranet are a communication link? Also there does not appear to be any language in the claim supporting "the group". What group is the link selected from?

*Claim Rejections - 35 U.S.C. § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-~~3~~ 5, 10-12, 19, 39-40, 46-48, 51-52 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,544,537).

Regarding claims 1, 10-12, 39, 46-47, 51-52 and 61, Zarrow discloses a computer system comprising a CPU (inherent to a computer; Figure 1, Reference 10); a first storage system that is coupled to the CPU to store information written from the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); at least one communication link coupling the second

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storage system to the CPU, the at least one communication link including a network cloud (WAN) that is shared with at least one other resource so that no portion of the network cloud is dedicated exclusively to transferring information between the CPU and the second storage system (Figure 1, Reference 14; C 2, L <sup>50-55</sup>~~43~~); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system by transferring the at least some of the information through the network cloud (C 4, L 41-67; C 5, L 1-35). Zarrow does not explicitly disclose the communication link extending between the first and second storage systems such that the second system is coupled to the CPU via the first storage system. However, Yanai does teach this feature (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby improving the performance of the system. Therefore, one of ordinary skill in the art would have been motivated to add the teachings of Yanai to the teachings of Zarrow (remote mirroring over a WAN) for the desirable purpose of improved performance.

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Regarding claims 2, 19, 40 and 48, Zarrow teaches a WAN (Internet) (C 2, L 1-3).

Regarding claim 5, Zarrow teaches data mirroring over a WAN. A WAN comprises many resources. The protocol implemented in such a network allows for communication between any of the resources.

Regarding claims 3, 18, 41 and 49, Zarrow teaches the concept of data mirroring over a network (WAN) as cited in claims 1, 39 and 47 above. Zarrow does not explicitly teach an Intranet network. However, mirroring is well known in the art for increased reliability which is a desirable feature in a network. Therefore, it would have been obvious to one of ordinary skill in the art to use the teachings of Zarrow and Yanai in an Intranet network for the desirable purpose of reliability.

8. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,54,537) as applied to claim 1 and further in view of Black (Computer Networks: Protocols, Standards and Interfaces, 2nd Edition, 1993).

Zarrow and Yanai teach the limitations cited above in claim 1; however, Zarrow nor Yanai explicitly teach a packet switched and cell network communication link. Yet, it is evident that issues such as applications, cost and other factors would dictate the use of one type of

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communication link versus another. It is really an issue of design choice. Black teaches in Computer Networks: Protocols, Standards and Interfaces, pages 159 -161, that organizations with low to medium traffic volumes could benefit from a packet switch network because most of the carriers charge on the volume of traffic. Thus it would have been obvious to one of ordinary skill in the art to use the teachings of Zarrow and Yanai in a packet switch and cell network for a system with low to medium traffic volumes for the desirable purpose of efficiency and cost.

9. Claims 6-8, 15-16, 20-21, 42-44 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,544,537) and Vishlitzky (USPN: 5,960,216).

Zarrow and Yanai disclose the limitations cited above for claims 1 and 39. However, Zarrow nor Yanai explicitly disclose a communication link comprising a plurality of communication paths for parallel transfer of packets. Vishlitzky discloses using a plurality of communication paths for parallel transfer of packets (Figure 3a, Reference 21a-21b; C 4, L 62-67; C 6, L 27-47). It <sup>is</sup> also known in the art to transfer data on parallel paths for increased throughput (such as Packet switch networks). Vishlitzky teaches that this feature enhances reliability by providing more than one path(channel) in case of a failure in one of the channels and this feature increases bandwidth by transferring data on all the channels compared to just a single channel. Thus, it would have been obvious to one of ordinary skill in the art to use a communication link comprising a plurality of

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communication paths to the system taught by Zarrow and Yanai for increased throughput, reliability and improved system performance.

10. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,544,537) as applied to claim 1 and further in view of Sparks (USPN: 5,212,784).

Zarrow and Yanai teach the limitations cited above for claim 1, however, neither explicitly teaches a communication link including a wireless connection. Sparks does suggest using a wireless connection as a communication link in a backup/mirroring system (C 7, L 28-36). Sparks teaches that such a configuration would allow transmitting backup/mirroring data offsite immediately thus improving the reliability of the system. It is also well known that wireless connections such as satellites provide a large transmission capacity and improve reliability due to the lack of wires. Thus, it would have been obvious to one of ordinary skill in the art to use a wireless connection in the system taught by Zarrow and Yanai for increased reliability and increased throughput.

11. Claim 13 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,544,537) as applied to claim 1 and further in view of Sparks (USPN: 5,212,784).

Zarrow and Yanai teach the limitations cited above in claims 1 and 39, however, neither explicitly teaches a third storage system having a third communication link wherein information from the



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primary storage unit is mirrored thereto. However, Sparks suggest using a third storage system and a third communication link for coupling the storage device to the CPU as an additional backup systems, wherein some of the information stored in the CPU would be mirrored/copied thereto (C 7, L 12-36). Sparks teaches that the additional backup system would provide simultaneous backup copies, thus increasing the reliability of the system (C 7, L 17-20). This concept is also known in RAID technology. Therefore, it would have been obvious to one of ordinary skill in the art to add a third storage device and a third communication link for storing mirrored information of the first storage device to the system taught by Zarrow and Yanai for increased reliability.

12. Claims 22-30 and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of Sparks (USPN: 5,212,784) and the admitted prior art Yanai (USPN: 5,544,537).

Regarding claims 22, 24-26 and 53, Zarrow discloses a computer system comprising a CPU (inherent to a computer; Figure 1, Reference 10); a first storage system that is coupled to the CPU to store information written from the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); at least one communication link coupling the second storage system to the CPU (Figure 1, Reference 14; C 2, L 1-3); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system by

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transferring the at least some of the information over the at least one communication link (C 4, L 41-67; C 5, L 1-35). Zarrow does not explicitly disclose a the at least one communication link comprising at least one wireless connection. However, Sparks does suggest using a wireless connection as a communication link in a backup/mirroring system (C 7, L 28-36). Sparks teaches that such a configuration would allow transmitting backup/mirroring data offsite immediately thus improving the reliability of the system. It is also well known that wireless connections such as satellites provide a large transmission capacity and improve reliability due to the lack of wires. Thus, it would have been obvious to one of ordinary skill in the art to use a wireless connection in Zarrow's system for increased reliability and increased throughput. Zarrow nor Sparks explicitly discloses the communication link extending between the first and second storage systems such that the second system is coupled to the CPU via the first storage system. However, Yanai does teach this feature (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby improving the performance of the system. Therefore, one of ordinary skill in the art would have been motivated to add the

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teachings of Yanai to the teachings of Zarrow and Sparks for the desirable purpose of improved performance.

Claim 23 is rejected for the same rationale as applied to claim 3 above.

Regarding claims 27-30 and 54-55, it is well known to use satellites and microwave systems for a wireless communication link. It would have been obvious to use either for the desirable purpose of design choice.

13. Claims 31-32 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of Sparks (USPN: 5,212,784) and the admitted prior art Yanai (USPN: 5,544,537).

Zarrow discloses a computer system comprising a CPU (inherent to a computer; Figure 1, Reference 10); a first communication link (Figure 1, Reference 32); a first storage system coupled to the CPU via the first communication link to store information written from the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); a second communication link coupling the second storage system to the CPU (Figure 1, Reference 14); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system (C 4, L 41-67; C 5, L 1-35). Zarrow does not explicitly disclose a third storage

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system and a third communication link coupling the third storage system to the CPU. However, Sparks suggest using a third storage system and a third communication link for coupling the storage device to the CPU as an additional backup systems, wherein some of the information stored in the CPU would be mirrored/copied thereto (C 7, L 12-36). Sparks teaches that the additional backup system would provide simultaneous backup copies, thus increasing the reliability of the system (C 7, L 17-20). This concept is also known in RAID technology.

Therefore, it would have been obvious to one of ordinary skill in the art to add a third storage device and a third communication link for storing mirrored information of the first storage device to Zarrow's system for increased reliability. Zarrow nor Sparks explicitly discloses the communication link extending between the first and second storage systems and the first and third storage system such that the second system and third storage system is coupled to the CPU via the first storage system. However, Yanai does teach the concept of extending the communication link between a primary and secondary (backup) storage systems such that the secondary storage system is coupled to the host via the first storage system (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby

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improving the performance of the system. Therefore, it would have been obvious to one of ordinary skill in the art to add the teachings of Yanai to the teachings of Zarrow and Sparks for the desirable purpose of improved performance.

Regarding claims 35 and 38, multicasting is known in the art. It is an efficient way of transferring data to simultaneously to multiple devices. Thus it would have been obvious to one of ordinary skill in the art to use multicasting in the system taught by Zarrow and Sparks for the desirable purpose of efficiency.

14. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of Sparks (USPN: 5,212,784 ) as applied to claim 31 above and further in view of Black (Computer Networks: Protocols, Standards and Interfaces, 2nd Edition, 1993). Zarrow and Sparks teach the limitations cited above in claim 34, however, Zarrow and Sparks do not explicitly teach a packet switched and cell network communication link. However, it is evident that issues such as applications, cost and other factors would dictate the use of one type of communication link versus another. It is really an issue of design choice. Black teaches in Computer Networks: Protocols, Standards and Interfaces, pages 159 -161, that organizations with low to medium traffic volumes could benefit from a packet switch network because most of the carriers charge on the volume of traffic. Thus it would have been obvious to one of ordinary

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skill in the art to use the teachings of Zarrow and Sparks in a packet switch and cell network for a system with low to medium traffic volumes for the desirable purpose of efficiency and cost.

15. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of Staheli (USPN: 5,537,533) and Yanai (USPN: 5,544,537).

Zarrow discloses a computer system comprising a CPU (inherent to a computer; Figure 1, Reference 10); a first storage system that is coupled to the CPU to store information written from the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); at least one communication link coupling the second storage system to the CPU (Figure 1, Reference 14; C 2, L 1-3); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system by transferring the at least some of the information over the at least one communication link (C 4, L 41-67; C 5, L 1-35). Zarrow discloses the at least one communication link consisting of the Internet (Figure 1, Reference 14). Zarrow does not explicitly disclose the communication link consisting of the Intranet, however, Zarrow teaches mirroring data over a WAN for improved reliability. The Intranet is a smaller and secured network system compared to the WAN. However, it is well known in the art, particularly in networks used at a company, for devices (computers, storages, etc) to communicate over an Intranet. One of ordinary skill in the art would have recognized the benefits of Zarrow teachings

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and would have been motivated to use Zarrow's teachings in a system with devices communicating over an Intranet for the desirable purpose of improved reliability.

Additionally, Zarrow does not disclose the communication link extending between the first and second storage systems such that the second system is coupled to the CPU via the first storage system. However, Yanai does teach this feature (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby improving the performance of the system. Therefore, one of ordinary skill in the art would have been motivated to add the teachings of Yanai to the teachings of Zarrow for the desirable purpose of improved performance.

16. Claim 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of Black (Computer Networks: Protocols, Standards and Interfaces, 2nd Edition, 1993) and the admitted prior art Yanai (USPN: 5,544,537).

Zarrow discloses a computer system comprising a CPU (inherent to a computer; Figure 1, Reference 10); a first storage system that is coupled to the CPU to store information written from

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the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); at least one communication link coupling the second storage system to the CPU (Figure 1, Reference 14; C 2, L 1-3); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system by transferring the at least some of the information over the at least one communication link (C 4, L 41-67; C 5, L 1-35). Zarrow does not explicitly disclose the at least one communication link being one of a packet switched and cell switch network. However, it is evident that issues such as applications, cost and other factors would dictate the use of one type of communication link versus another. It is really an issue of design choice. Black teaches in *Computer Networks: Protocols, Standards and Interfaces*, pages 159 - 161, that organizations with low to medium traffic volumes could benefit from a packet switch network because most of the carriers charge on the volume of traffic. Thus it would have been obvious to one of ordinary skill in the art to use the teachings of Zarrow in a packet switch and cell network for a system with low to medium traffic volumes for the desirable purpose of efficiency and cost. Zarrow nor Black explicitly discloses the communication link extending between the first and second storage systems such that the second system is coupled to the CPU via the first storage system. However, Yanai does teach this feature (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention



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seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby improving the performance of the system. Therefore, one of ordinary skill in the art would have been motivated to add the teachings of Yanai to the teachings of Zarrow and Black for the desirable purpose of improved performance.

17. Claims 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarrow (USPN: 5,991,813) in view of the admitted prior art Yanai (USPN: 5,544,537) and Vishlitzky (USPN: 5,960,216).

Regarding claims 62-67, Zarrow discloses a computer system comprising a CPU (Figure 1, Reference 10); a first storage system that is coupled to the CPU to store information written from the CPU (Figure 1, Reference 16); a second storage system (Figure 1, Reference 18); at least one communication link coupling the second storage system to the CPU, the at least one communication link including a network cloud (WAN) that is shared with at least one other resource so that no portion of the network cloud is dedicated exclusively to transferring information between the CPU and the second storage system (Figure 1, Reference 14; C 2, L 1-3); and a mirror controller responsive to the information being written from the CPU to the first storage system to mirror at least some of the information written from the CPU to the first storage system in the second storage system by transferring the at least some of the information

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through the network cloud (C 4, L 41-67; C 5, L 1-35). Zarrow does not explicitly disclose the communication link extending between the first and second storage systems such that the second system is coupled to the CPU via the first storage system. However, Yanai does teach this feature (Figure 1, Reference 40; C 4, L 50-56). Yanai teaches that this feature allows data mirroring from a primary data storage system to a secondary storage system without the intervention of the host which improves the performance of the system (C 2, L 25-33). Yanai also teaches that host (server) intervention seriously degrades the performance of the data transfer link between the host computer and the primary storage device. One of ordinary skill in the art would have also recognized that this feature allows the host to perform other task while the storage controller performs the mirroring operation, thereby improving the performance of the system. Therefore, one of ordinary skill in the art would have been motivated to add the teachings of Yanai to the teachings of Zarrow for the desirable purpose of improved performance. Zarrow nor Yanai explicitly disclose a communication link comprising a plurality of communication paths for parallel transfer of packets. Vishlitzky discloses using a plurality of communication paths for parallel transfer of packets (Figure 3a, Reference 21a-21b; C 4, L 62-67; C 6, L 27-47). It also known in the art to transfer data on parallel paths for increased throughput (such as Packet switch networks). Vishlitzky teaches that this feature enhances reliability by providing more than one path(channel) in case of a failure in one of the channels and this feature increases bandwidth by transferring data on all the channels compared to just a single channel. Thus, it would have been obvious to one of ordinary skill in the art to use a communication link

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comprising a plurality of communication paths to the system taught by Zarrow and Yanai for increased throughput, reliability and improved system performance.

*Response to Arguments*

18. Applicant's arguments filed have been fully considered but they are not persuasive.

In response to Applicant's argument that the Examiner points to no motivation in the prior art of record to make the further modification to the combined system of Yanai and Zarrow to replace the direct point-to-point communication link that Yanai teaches for communicating between the two storage systems, the Examiner's position states that Yanai's teachings are added to Zarrow's teachings. Yanai teaches coupling a secondary storage system to a primary storage via a communication link, thereby coupling the secondary storage system to a CPU via the primary storage system for the purpose of mirroring data without intervention of the host. Zarrow specifically teaches mirroring data through a network cloud (WAN). However, in doing so, Zarrow allows host intervention (mirroring software on host machine controls the mirroring operation) wherein the secondary storage is not coupled to the host (CPU) through a secondary storage system, which Yanai states degrades the performance of the system by overly burdening the host CPU with the task of writing the data to the secondary storage system and thus dramatically impacts and reduces system performance (C 2, L 17-25), which suggests the desirability of using Yanai's teachings. Thus one of ordinary skill in the art would have recognized the performance benefits of the combined teachings of Zarrow and Yanai and would

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have been motivated to add the teachings of Zarrow to Yanai for improved performance. The Examiner has used the secondary reference for the specific teaching of coupling a secondary storage system to a host CPU via a primary storage system and not for using a point to point communication link. Therefore, motivation to replace the direct point-to-point communication link in Yanai's system is not provided as this feature was not relied upon. It should be noted that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

With regard to Applicant's statement that anyone using Yanai's teachings would have only known to use a point-to-point communication link, the Examiner disagrees. Anyone of ordinary skill in the art would have known that Yanai's teachings were directed to connecting a secondary storage system storage to a primary storage system to perform data mirroring without host intervention which provides improved performance and one of ordinary skill in the art would have also known of different implementations of communication links as point to point communication links were not the only type of communication links known at the time of the invention as is shown in the teachings of Zarrow. It is clear that the communication link in Yanai's system functions merely to couple two systems wherein the type communication link used does not alter the fact that the

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secondary storage system is connected to the CPU via the primary storage system and not directly to the host CPU so that mirroring is performed without intervention from the host CPU.

19. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

### ***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly McLean whose telephone number is (703) 308-9592 (e-mail address: Kimberly.McLean2@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Do Yoo, can be reached on (703) 308-4908.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9000.

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Any formal response to this action intended for entry should be mailed to Commissioner of Patents and Trademarks, Washington, D.C. 20231 or faxed to (703) 305-9051 and labeled "FORMAL" or "OFFICIAL". Any informal or draft communication should be faxed to (703) 305-9731 and labeled "INFORMAL" or "UNOFFICIAL" or "DRAFT" or "PROPOSED" and followed by a phone call to the Examiner at the above number. Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

KNM

April 5, 2001

*Do Hyun Yoo*  
DO HYUN YOO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100